Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

June 25, 2019

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1110913
Samples Received:	06/20/2019
Project Number:	Q-TIME 46450
Description:	Wallowa Lake Drum Removal-2019

Report To: Jamie Collins
700 NE Multnomah St. #600
Portland, OR 97124

Entire Report Reviewed By:

Jared Starkey
Project Manager

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1906-0019 L1110913-01 GW

Collected by: Lisa Graves
Collected date/time: 06/17/19 18:05
Received date/time: 06/20/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1300866	1	06/24/19 08:18	06/25/19 05:10	LEL	Mt. Juliet, TN

1906-0020 L1110913-02 GW

Collected by: Lisa Graves
Collected date/time: 06/18/19 07:43
Received date/time: 06/20/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1300866	1	06/24/19 08:18	06/25/19 05:24	LEL	Mt. Juliet, TN

1906-0021 L1110913-03 GW

Collected by: Lisa Graves
Collected date/time: 06/18/19 12:14
Received date/time: 06/20/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1300866	1	06/24/19 08:18	06/25/19 05:37	LEL	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jared Starkey
Project Manager

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
2,4-D	U		0.744	2.00	1	06/25/2019 05:10	WG1300866
Dalapon	U		1.04	2.00	1	06/25/2019 05:10	WG1300866
2,4-DB	U		0.775	4.00	1	06/25/2019 05:10	WG1300866
Dicamba	U		0.813	2.00	1	06/25/2019 05:10	WG1300866
Dichloroprop	U		0.778	2.00	1	06/25/2019 05:10	WG1300866
Dinoseb	U		0.795	2.00	1	06/25/2019 05:10	WG1300866
MCPA	U	J4	13.1	200	1	06/25/2019 05:10	WG1300866
MCPP	U		7.15	200	1	06/25/2019 05:10	WG1300866
2,4,5-T	U		0.843	2.00	1	06/25/2019 05:10	WG1300866
2,4,5-TP (Silvex)	U		0.845	2.00	1	06/25/2019 05:10	WG1300866
(S) 2,4-Dichlorophenyl Acetic Acid	*90.2*			*14.0-158*		*06/25/2019 05:10*	WG1300866

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
2,4-D	U		0.744	2.00	1	06/25/2019 05:24	WG1300866
Dalapon	U		1.04	2.00	1	06/25/2019 05:24	WG1300866
2,4-DB	U		0.775	4.00	1	06/25/2019 05:24	WG1300866
Dicamba	U		0.813	2.00	1	06/25/2019 05:24	WG1300866
Dichloroprop	U		0.778	2.00	1	06/25/2019 05:24	WG1300866
Dinoseb	U		0.795	2.00	1	06/25/2019 05:24	WG1300866
MCPA	U	J4	13.1	200	1	06/25/2019 05:24	WG1300866
MCPP	U		7.15	200	1	06/25/2019 05:24	WG1300866
2,4,5-T	U		0.843	2.00	1	06/25/2019 05:24	WG1300866
2,4,5-TP (Silvex)	U		0.845	2.00	1	06/25/2019 05:24	WG1300866
(S) 2,4-Dichlorophenyl Acetic Acid	*83.5*			*14.0-158*		*06/25/2019 05:24*	WG1300866

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
2,4-D	U		0.744	2.00	1	06/25/2019 05:37	WG1300866
Dalapon	U		1.04	2.00	1	06/25/2019 05:37	WG1300866
2,4-DB	U		0.775	4.00	1	06/25/2019 05:37	WG1300866
Dicamba	U		0.813	2.00	1	06/25/2019 05:37	WG1300866
Dichloroprop	U		0.778	2.00	1	06/25/2019 05:37	WG1300866
Dinoseb	U		0.795	2.00	1	06/25/2019 05:37	WG1300866
MCPA	U	J4 J5	13.1	200	1	06/25/2019 05:37	WG1300866
MCPP	U		7.15	200	1	06/25/2019 05:37	WG1300866
2,4,5-T	U		0.843	2.00	1	06/25/2019 05:37	WG1300866
2,4,5-TP (Silvex)	U		0.845	2.00	1	06/25/2019 05:37	WG1300866
(S) 2,4-Dichlorophenyl Acetic Acid	*88.4*			*14.0-158*		*06/25/2019 05:37*	WG1300866

Method Blank (MB)

(MB) R3424278-1 06/25/19 04:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2,4-D	U		0.744	2.00
Dalapon	U		1.04	2.00
2,4-DB	U		0.775	4.00
Dicamba	U		0.813	2.00
Dichloroprop	U		0.778	2.00
Dinoseb	U		0.795	2.00
MCPA	U		13.1	200
MCPP	U		7.15	200
2,4,5-T	U		0.843	2.00
2,4,5-TP (Silvex)	U		0.845	2.00
(S) 2,4-Dichlorophenyl Acetic Acid	*68.6*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R3424278-2 06/25/19 04:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	5.00	4.86	97.2	50.0-120	
Dalapon	5.00	4.73	94.6	32.0-120	
2,4-DB	5.00	3.74	74.8	53.0-140	
Dicamba	5.00	5.23	105	51.0-120	
Dichloroprop	5.00	4.86	97.2	55.0-127	
Dinoseb	5.00	4.00	80.0	36.0-134	
MCPA	50.0	140	280	10.0-160	E J4
MCPP	50.0	66.1	132	10.0-160	
2,4,5-T	5.00	5.07	101	54.0-120	
2,4,5-TP (Silvex)	5.00	5.06	101	50.0-125	
(S) 2,4-Dichlorophenyl Acetic Acid			*105*	*14.0-158*	

L1110913-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1110913-03 06/25/19 05:37 • (MS) R3424278-3 06/25/19 05:51 • (MSD) R3424278-4 06/25/19 06:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-D	4.90	U	4.59	4.67	93.7	95.3	1	50.0-120			1.73	20
Dalapon	4.90	U	4.24	4.23	86.5	86.3	1	32.0-120			0.236	20
2,4-DB	4.90	U	3.62	3.70	73.9	75.5	1	53.0-140			2.19	20
Dicamba	4.90	U	4.90	4.94	100	101	1	51.0-120			0.813	20

L1110913-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1110913-03 06/25/19 05:37 • (MS) R3424278-3 06/25/19 05:51 • (MSD) R3424278-4 06/25/19 06:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Dichloroprop	4.90	U	4.57	4.44	93.3	90.6	1	55.0-127			2.89	20
Dinoseb	4.90	U	4.00	3.78	81.6	77.1	1	36.0-134			5.66	20
MCPA	49.0	U	104	150	212	306	1	10.0-160	E J5	E J5	36.2	40
MCPP	49.0	U	62.5	60.4	128	123	1	10.0-160			3.42	23
2,4,5-T	4.90	U	4.85	5.00	99.0	102	1	54.0-120			3.05	20
2,4,5-TP (Silvex)	4.90	U	4.80	4.86	98.0	99.2	1	50.0-125			1.24	20
(S) 2,4-Dichlorophenyl Acetic Acid					*99.2*	*98.4*		*14.0-158*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

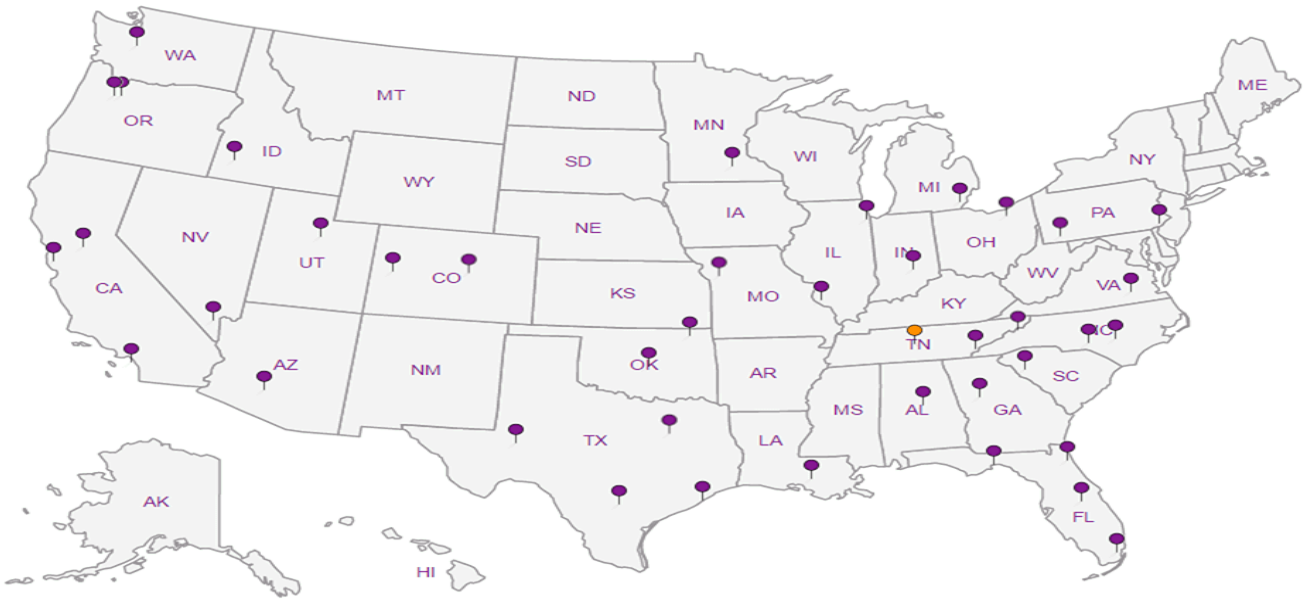
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



E006

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent: Oregon Department of Environmental Quality	**Contract Laboratory Name:** Pace Analytical Services	**Lab Selection Criteria:** ☒ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☐ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☒ Emergency work	**Turn Around Time:** ☐ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☒ 24 hours ☐ Other
Send Lab Report To: Address: Jamie Collins, Dept. of Environmental Quality 475 NE Bellevue Dr., Suite 110, Bend, OR 97701 Tel. #: 541-633-2010 E-mail: Collins.jamie@deq.state.or.us	**Lab Batch #:** **Invoice To:** Address: Dept. of Environmental Quality 700 NE Multnomah Street, Suite 600 Tel. #: 503-229-5696		

Project Name: Project #: Q-Time 46450 – Wallowa Lake Drum Removal - 2019

Sampler Name: Lisa Graves, Ecology and Environment, Inc.

Sample Preservative: N/A, N/A

Requested Analyses

Sample ID#	Collection Date/Time	Matrix	Number of Contain-ers	EPA 8151 A	TOC 9060 A									Comments 1110913
1906-0019	6/17/19 18:05	W	1	X										Bottle ID: LK06SW 01
1906-0020	6/18/19 7:43	W	1	X										Bottle ID: LK07SW 02
1906-0021	6/18/19 12:14	W	6	X										MS/MSD; Bottle ID: LK08SW 03

Notes: for questions regarding the sample contact Lisa Graves at 206-708-3747 (lgraves@ene.com); or DEQ point of contact Bob Schwarz at 509-637-0725

Relinquished By: LISA GRAVES	Agency/Agent: E&E	Received By:	Agency/Agent:
Signature: LISA GRAVES	Time & Date: 6.19.19 6:50	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By: Brittany Maxwell	Agency/Agent: PACE
Signature:	Time & Date:	Signature: B Maxwell	Time & Date: 6/20/19 0900

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #**102-1098-07** AND PRICE AGREEMENT # [ ]. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

5.7±0=5.7 IR... RAD SC... <0.5 ...R/hr 4794 8839 9821/9626

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: Otsegaléa	SDG#:	111913	
Cooler Received/Opened On: 6/20/19	Temperature:	5.7	
Received By: Brittany Maxwell			
Signature: Brittany Maxwell			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			